# ABSTRACT

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**Evaluation of activity of potentional antifungal substances through the use of microdilution broth method II**

**Diploma thesis**

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The main concern of this study was to test potential antifungal agents and evaluate their activities. During the experiment were tested two groups of compounds, derivatives pyrazin-2-carboxamide and salicylanilide. Using microdilution broth method were measured the activities of these substances against eight strains of filamentous fungi and yeasts, which included *C. albicans, C. tropicalis, C. krusei, C. glabrata, T. beigelii, A. fumigatus, A. corymbifera* and *T. mentagrophytes*. For determining the sensitivity of these strains of fungi against tested substances was prepared eleven different concentrations (500 $\mu mol \cdot l^{-1}$, 250 $\mu mol \cdot l^{-1}$, 125 $\mu mol \cdot l^{-1}$, 62,5 $\mu mol \cdot l^{-1}$, 31, 25 $\mu mol \cdot l^{-1}$, 15,625 $\mu mol \cdot l^{-1}$, 7,813 $\mu mol \cdot l^{-1}$, 3,906 $\mu mol \cdot l^{-1}$, 1,953 $\mu mol \cdot l^{-1}$, 0,977 $\mu mol \cdot l^{-1}$ and 0,488 $\mu mol \cdot l^{-1}$), which let incubate with the fungi. Performing microdilution broth method was determined the minimum inhibitory concentration (MIC), whose value indicates the lowest concentration of test substance that causes visible suppression of growth of yeasts or filamentous fungi.

Based on the results obtained by performing this method, it was found that the group of salicylanilides is more effective and has a larger antifungal activity in compared with derivatives of pyrazin-2-carboxamide. From substances derived from pyrazin-2-carboxamide was the highest antifungal effect demonstrated for 5-cyano-3-(hexylamino)pyrazin-2-carboxamide (JZM-2), whose the minimum inhibitory concentration is 31,25 $\mu mol \cdot l^{-1}$. More than half of salicylanilides had some antifungal activity, however the most significant it was manifested for (S)-4-bromo-2-(4-(trifluoromethyl)fenylcarbamoyl)phenyl-2-acetamide-4-(methylthio)butanoate (MSA 125) and (S)-4-brom-2-(4-(trifluoromethyl)phenylcarbamoyl)-1-phenyl-2-acetylpyrrolidincarboxylate (MSA 126), their antifungal effect was mainly manifested against TM (MIC = 3,9 $\mu mol \cdot l^{-1}$).